

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Miehner et al.

Attorney Docket No.: KLA1P119

Application No.: 10/760,149

Examiner: Valentin, Juan D

Filed: January 17, 2004

Group: 2877

Title: METHOD FOR PROCESS  
OPTIMIZATION AND CONTROL BY  
COMPARISON BETWEEN 2 OR MORE  
MEASURED SCATTEROMETRY SIGNALS

Confirmation: 7190

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail on December 22, 2006 in an envelope addressed to the Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.

Signed: \_\_\_\_\_

Carol Dietz

**INFORMATION DISCLOSURE STATEMENT  
BEFORE FINAL ACTION OR NOTICE OF ALLOWANCE  
(37 CFR §§ 1.56 AND 1.97(c))**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

The references listed in the attached PTO Form 1449, copies of non-U.S. references are attached, may be material to examination of the above-identified patent application. Applicants submit these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these citations of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is being filed after the mailing date of the first Office Action on the merits, or after three months of the filing date of this application, whichever event occurred last, but it is believed before the mailing date of either: (i) a final action under §1.113 or (ii) a notice of allowance under §1.311, whichever occurs first.

Accompanying this Information Disclosure Statement is

- ☐ a statement as specified in 37 CFR 1.97(e); or
- ☒ the fee set forth in 37 CFR 1.17(p).

If it is determined that any additional fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 500388 (Order No. KLA1P119).

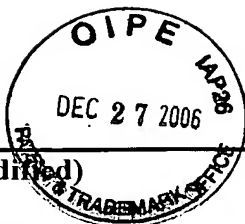
Respectfully submitted,

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<b>Form 1449 (Modified)</b>  <b>Information Disclosure Statement By Applicant</b>  (Use Several Sheets if Necessary)	Atty Docket No.	Application No.:
	KLA1P119	10/760,149
	Applicant:	
	Mieher et al.	
	Filing Date	Group
	January 17, 2004	2877

#### U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A1	4,908,656	03/13/90	Suwa et al.			01/19/89
	A2	5,607,800	03/04/97	Ziger			02/15/95
	A3	5,629,772	05/13/97	Ausschnitt			12/20/94
	A4	5,790,254	08/04/98	Ausschnitt			06/26/96
	A5	5,902,703	05/11/99	Leroux et al.			03/27/97
	A6	5,936,738	08/10/99	Liebmann et al.			08/03/98
	A7	6,063,531	05/16/00	Singh et al.			10/06/98
	A8	6,483,580	11/19/02	Xu et al.			03/06/98
	A9	5,773,174	06/30/98	Koizumi et al.			07/09/97
	A10	6,485,872	11/26/02	Rosenthal et al.			11/22/00
	A11	6,304,999	10/16/01	Toprac et al.			10/23/00
	A12	6,501,534	12/31/02	Singh et al.			04/30/01
	A13	6,513,151	01/28/03	Erhardt et al.			02/26/01
	A14	5,965,309	10/12/99	Ausschnitt et al.			10/28/97
	A15	6,433,878	08/13/02	Niu et al.			01/29/01
	A16	6,778,275	08/17/04	Bowes			02/20/02
	A17	6,982,793	01/03/06	Yang et al.			04/04/02
	A18	2004/0169861	09/02/04	Meiher et al.			12/05/03

#### Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	B1	Junwei Bao, "A Lithography Focus Monitor Based on Scattering from 2D Gratings", downloaded May 22, 2002, <a href="http://buffy.eecs.berkeley.edu/IRO/Summary/99abstracts/junwei.1.html">http://buffy.eecs.berkeley.edu/IRO/Summary/99abstracts/junwei.1.html</a>
	B2	Junwei Bao., "A Spectral Scatterometry-Based Pilot Inspector", downloaded May 22, 2002, <a href="http://buffy.eecs.berkeley.edu/IRO/Summary/98abstracts/junwei.3.html">http://buffy.eecs.berkeley.edu/IRO/Summary/98abstracts/junwei.3.html</a>
	B3	Edgar et al., "Simultaneous Identification of Focus and Exposure Drifts in Control of Photolithography CD", downloaded May 22, 2002, Technical Program paper Detail - AICHe
	B4	Ralph Foong, "Characterizing the Sensitivity of Spectral Scatterometry", Downloaded May 30, 2002, <a href="http://buffy.eecs.berkeley.edu/IRO/Summary/00abstracts/foong.1.html">http://buffy.eecs.berkeley.edu/IRO/Summary/00abstracts/foong.1.html</a>
Examiner		Date Considered

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**Other Documents**

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	B5	Moers et al., "Application of the aberration ring test (ARTEMIS™) to Determine lens Quality and Predict its Lithographic Performance", Proceedings of SPIE Vol. 4346 (2001)
	B6	Xinhui Niu, "Spectral Scatterometry for CD Control", <a href="http://buffy.eecs.berkeley.edu/IRO/Summary/98abstracts/xniu.2.html">http://buffy.eecs.berkeley.edu/IRO/Summary/98abstracts/xniu.2.html</a>
	B7	Niu et al., "Specular Spectroscopic Scatterometry in DUV Lithography"
	B8	Joseph C. Pellegrini et al., "Emerging Trends in Photolithography Analysis and Control", New Vision Systems, Inc., Cambridge, MA.
	B9	Schoot et al., "Printing 130nm DRAM Isolation Pattern: Zernike Correlation and Tool Improvement", Proceedings of SPIE" vol. 4346 (2001)
	B10	Verhaegen et al., "CD Control for Two-Dimensional Features in Future Technology Nodes", Proceedings of SPIE, vol. 4346 (2001)
	B11	Yeung et al., "Inverse Obstacle Problem in Ellipsometric Scatterometry", Department of Manufacturing Engineering, Boston University.
	B12	"Metrology for the Future", European Semiconductor, August 2001
	B13	"2.1 Some Fundamental Considerations", Downloaded May 22, 2002, <a href="http://www.iue.tuwien.ac.at/publications/PhD%20theses/Kirchauer/node.html">www.iue.tuwien.ac.at/publications/PhD%20theses/Kirchauer/node.html</a>
	B14	"3.2.1 Focus Effects and Process Window", Downloaded May 22, 2002, <a href="http://www.iue.tuwien.ac.at/publications/PhD%20theses/Kirchauer/node41.html">www.iue.tuwien.ac.at/publications/PhD%20theses/Kirchauer/node41.html</a>
	B15	Mieher et al., "Spectroscopic CD Metrology for Sub-100nm Lithography Process Control", Proceedings of SPIE Vol. 4689 (2002).
Examiner		Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.